## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.

Not Assigned

**Applicant** 

Keith D. Beaty

Filed

November 5, 2003

Title

**Implant Surface Preparation** 

TC/A.U.

Not Assigned

Examiner

Not Assigned

Docket No.

47168-00033USC3

Customer No.

30223

## INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§1.97 and 1.98

CERTIFICATE OF MAILING 37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail in an envelope addressed to: MS DD, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below:

Dear Commissioner:

P.O. Box 1450

Commissioner for Patents

Alexandria, VA 22313-1450

In compliance with the duty of disclosure under 37 C.F.R. §1.56, it is respectfully requested that this Information Disclosure Statement be entered, and the references listed on enclosed Form PTO-1449 be considered by the Examiner and made of record. In accordance with 37 C.F.R. § 1.98(d), copies of the listed references are not enclosed, as they were previously supplied by the Applicants, or cited by the Examiner previously in the parent applications.

This application is a continuation of U.S. Application No. 09/777,335 filed February 26, 2001; which is a continuation of U.S. Patent Application No. 09/259,432 filed March 1, 1999 (to issue as U.S. Pat. No. 6,491,723), which was a continuation of U.S. Patent Application No. 08/607,903, filed February 27, 1996 (to issue as U.S. Pat. No. 5,876,453), which was filed as PCT/US95/15576, filed on November 30, 1995, which is a continuation-in-part of pending U.S.

patent application Serial No. 08/351,214, filed November 30, 1994, (now abandoned) for "Implant Surface Preparation."

In accordance with 37 C.F.R. §§ 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that the information disclosed is, or is considered to be, prior art with respect to the present application or material to patentability as defined in 37 C.F.R. §§ 1.56.

The present Information Disclosure statement is being filed with the patent application and hence is believed to be timely in accordance with 37 C.F.R. § 1.97(b). Accordingly, no fees are believed to be due in connection with the filing of this Information Disclosure Statement. However, should any fees be deemed necessary (except payment of the issue fee), the Commissioner is authorized to charge any deficiency or to credit any overpayment to Jenkens & Gilchrist Account No. 10-0447/47168-00033USC3.

Respectfully submitted,

November 5, 2003

Date

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Form PTO-1449 (modified)	Atty. Docket No. Serial No.			
	47168-00033USC3	Not Assigned		
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT	Applicant Keith D. Beaty			
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	A01 3,022,783 02/27/1962 Tucker, Jr.		128	1							
	A02	3,605,123	09/20/1971	Hahn	3	1					
	A03	3,767,437	10/23/1973	Cruz, Jr.	106	161					
	A04	3,790,507	02/1974	Hodosh	433	173					
	A05	3,855,638	12/24/1974	Pilliar	3	1					
·	A06	3,919,723	11/18/1975	Heimke et al.	3	1.9					
·	A07	3,986,212	10/19/1976	Sauer	3	1.91	70				
-	A08	3,987,499	10/26/1976	Scharbach et al.	3	1.91					
	A09	4,011,602	3/1977	Rybicki et al.	3	1.9					
	A10	4,051,598	10/04/1977	Sneer	32	10 A					
	A11	4,145,764	03/27/79	Suzuki, et al	3	1.9					
	A12	4,180,910	1/1974	Pilliar							
•	A13	4,195,409	04/1980	Child	433	175					
	A14	4,199,864	04/29/1980	Ashman	433	175	:				
	A15	4,261,350	04/14/1981	Branemark et al.	128	92 BC					
	A16	4,330,891	05/25/1982	Branemark et al.	3	1					
	A17	4,336,618	06/29/1982	Branemark et al.	3	1					
	A18	4,406,761	09/27/1983	Shimogori et al.	204	144.5					
	A19	4,530,116	7/1985	Frey	623	23					
	A20	4,547,157	10/15/1985	Driskell	433	173					
	A21	4,547,327	10/15/1985	Bruins et al.	264	16					
	A22	4,608,052	08/26/1986	Van Kampen et al.	623	22	- 1				
	A23	4,629,464	12/16/1986	Takata et al.	623	16					
	A24	4,654,314	03/31/1987	Takagi et al.	501	82					
	A25	4,702,930	10/27/1987	Heide et al.	427	2					
	A26	4,704,126	11/03/1987	Baswell et al.	623	10					

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	A26	4,704,126	11/03/1987	Baswell et al.	623	10				
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	A27	4,722,688	02/02/1988	Lonca	433	173					
	A28	4,818,559	04/04/1989	Hama, et al	427	2					
	A29	4,826,434	05/02/1989	Krueger	433	174					
	` <b>A</b> 30	4,865,603	9/1989	Noiles	623	18					
	A31	4,871,578	10/03/1989	Adam et al.	427	2					
	A32	4,874,434	10/17/1989	Riggs, Jr.	134	3					
	A33	4,878,914	11/1989	Miwa et al.	623	16	-				
	A34	4,908,030	03/13/1990	Linkow, et al	623	16					
	A35	4,911,953	03/27/1990	Hosonuma, et al	427	224					
	A36	4,944,754	07/31/1990	Linkow, et al	623	16					
	A37	4,969,906	11/13/1990	Kronman	623	16					
	A38	4,988,299	01/29/1991	Branemark	433	174					
	A39	5,000,685	03/19/1991	Brajnovic	433	173					
	A40	5,030,096	07/09/1991	Hurson et al.	433	173					
	A41	5,071,351	12/10/1991	Green, et al	422	23					
	A42	5,188,800	02/23/1993	Green, et al	433	173					
	A43	5,190,795	03/02/1993	Culler	427	226					
	A44	5,199,873	04/06/1993	Schulte et al.	433	174					
	A45	5,205,745	04/27/1993	Kamiya							
	A46	5,219,361	06/15/1993	von Recum et al.	623	11					
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	A50	5,297,963	03/29/1994	Dafatry	433	172					
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	A53	5,344,425	09/06/1994	Sawyer	606	198				
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	A56	5,366,374	11/1994	Vlassis	433	165				
	A57	5,368,480	11/29/1994	Balfour et al.	433	141				
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	A60	5,433,606	07/18/1995	Niznick et al.	433	173				
	A61	5,456,723	10/10/1995	Steinemann, et al	623	16				
	A62	5,478,237	12/26/1995	Ishizaswa	433	201.1				
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	A64	5,489,210	02/06/1996	Hanosh	433	173				
	A65	5,503,558	04/02/1996	Clokie	433	173				
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	A71	5,603,338	02/18/1997	Beaty	623	16	· · · · · · · · · · · · · · · · · · ·			
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	B03	EP 202031 A2	11/20/1986	European	A 61 F	2/04	N/A				
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	B10	2 421 595	77/03/1979	Fran	ice	A 61 C	8/00	Abs.	
	B09	2 289 160	10/30/1974	Frai	nce	A 61 F	1/00	Abstract	
	B08	EP 606566 A1	07/20/1994	Euro	opean				

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Other Art (Including Author, Title, Date Pertinent Pages, Etc.)		
Exam. Init.	Ref. Des.	Citation
	C01	A histomorphometric and removal torque study of screw-shaped titanium implants with three different surface topographies (Ref. D33)
	C02	Adhesion of Bone to Titanium (Ref. 27)
	C03	Albrektsson, T., P.I. Branemark, H.A. Hansson & J. Lindstrom, "Osseointegrated Titanium Implants," 1991.
	C04	An animal study of c.p. titanium screws with different surface topographies (Ref. D 32)
	C05	ASTM Designation F 86-84, "Standard Practice for Surface Preparation and Marking of Metallic Surgical Implants".
	C06	Baier, R. E., et al., "Surface Energetics And Biological Adhesion," International Symposium on Physicochemical Aspects of Polymer Surfaces, Volume 2, pp. 895-909
	C07	Baier, R.E; A.E. Meyer "Implant Surface Preparation," International Journal of Oral & Maxillofacial Implants, Vol. 3, 9-20, 1988.
	C08	Binon, P. "Evaluation of Machining Accuracy and Consistency of Selected Implants, Standard Abutments, and Laboratory Analogs," The International Journal of Prosthodontics, Vol. 8, 162-178, 1995.
	C09	Bio Materials 1996 Vol. 17, No. 6 pp. 605-616 "Bone response to surface-modified titanium implants: studies on the early tissue response to machined and electropolished implants with different oxide thicknesses", Larsson et al.
	C10	Bio Materials 1994 Vol. 15, No. 13, pp. 1062-1074 "Bone response to surface modified titanium implants: studies on electropolished implants with different oxide thicknesses and morphology", Larsson et al.
	C11	Buser et al., "Interface Shear Strength of Titanium Implants With a Sandblasted and Acid-Etched Surface: A Biomechanical Study in the Maxilla of Miniature Pigs," <i>J Biomed Mater Res</i> , 45 (1999), pgs. 75-83.
	C12	Boyan et al., "Titanium Surface Roughness Alters Responsiveness of MG63 Osteoblast-Like Cells to 1α,25-(OH) <sub>2</sub> D <sub>3</sub> ," <i>J Miomed Mater Res</i> , 39 (1998), pgs. 77-85.
	C13	Bowers, K.; Keller, J.; Randolph, B.; Wick, D.; Michaels, C. "Optimization of Surface Micromorphology for Enhanced Osteoblast Responses In Vitro" International Journal of Oral & Maxillofacial Implants. Vol. 7 No. 3, Pages 302-310, 1992.
	C14	Branemark, P.I.; et al, Osseointegrated implants in the Treatment of the Edentulous Jaw Experience from a 10-year period, Stockholm, Almqvist & Wiksell International, 1977.
	C15	Per-Ingvar Branemark, M.D., Ph.D., "Tissue-Integrated Prostheses" (Ref. 43)

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<u> </u>	C15	Per-Ingvar Branemark, M.D., Ph.D., "Tissue-Integrated Prostheses" (Ref. 43)
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	C16	Buser, D., et al., "Influence Of Surface Characteristics On Bone Integration Of Titanium Implants, A Histomorphometric Study In Miniature Pigs," Journal of Biomedical Materials Research, Volume 25, pp. 889-902 (1991).
	C17	Daniel Buser, DDS, et al., "Removal Torque Values of Titanium Implants in the Maxilla of Miniature Pigs", pp. 611-619
	C18	Carlsson L.; T. Rostlund; B. Albrektsson; T. Albrektsson "Removal Torques for Polished and Rough Titanium Implants," International Journal of Oral & Maxillofacial Implants, Vol. 3, 21-24, 1988.
	C19	Cochran et al., "Bone Response to Unloaded and Loaded Titanium Implants With a Sandblasted and Acid-Etched Surface: A Histometric Study in the Canine Mandible," <i>J Biomed Mater Res</i> , 40 (1998), pgs 1-11.
	C20	Cochran et al., "Evaluation of an Endosseous Titanium Implant With a Sandblasted and Acid-Etched Surface in the Canine Mandible: Radiographic Results," <i>Clinical Oral Implants Research</i> 1996: 7: 240-252.
	C21	Cook, S.; F. Georgette; H. Skinner; R. Haddad, Jr. "Fatigue properties of carbon- and porous-coated Ti-6A1-4V alloy," Journal of Biomedical Materials Research, Vol. 18, 497-512, 1984.
	C22	Stephen D. Cook, Ph.D. et al., "Interface Mechanics and Histology of Titanium and Hydroxylapatite-Coated Titanium for Dental Implant Applications" (Ref. 47)
	C23	Curtis, A. S. G., et al., "The Effects Of Topographic And Mechanical Properties Of Materials On Cell Behavior," Critical Reviews in Biocompatibility, Volume 5, Issue 4, pp. 343-362 (1990)
	C24	Das Prinzip der neuen Ledermann-Schraube (German Reference D3)
	C25	de Groot, K., et al., "Plasma Sprayed Coatings Of Hydroxylapatite," Journal of Biomedical Materials Research, Volume 21, pp. 1375-1381 (1987)
	C26	C. de Putter et al., Implant Materials in Biofunction, "Removal Forces For Osseointegrated Titanium Implants" (Ref. 31)
	C27	Declaration of Prabhu Gubbi presenting information on the surfaces of 61 implants (November 2, 2001)
	C28	Denar Introduces Steri-Oss: The First Complete Oral Rehabilitation Implant System
	C29	"Design and Surface Characteristics of 13 Commercially Available Oral Implant Systems," Int. J. Oral Maxillofactial Implants, 1993, 8:622-633.
	C30	Eberhardt, A., et al., "Effects Of Precoating Surface Treatments On Fatigue Of Ti-6A1-4V," Journal of Applied Biomaterials, Volume 6, pp. 171-174 (1995)
	C31	Effect of a Blycoprotein Monomolecular Layer on the Integration of Titanium Implants in Bone (Ref. D48)

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 C31	Effect of a Blycoprotein Monomolecular Layer on the Integration of Titanium Implants in Bone (R D48)		
C30	Eberhardt, A., et al., "Effects Of Precoating Surface Treatments On Fatigue Of Ti-6A1-4V," Journal of Applied Biomaterials, Volume 6, pp. 171-174 (1995)		
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:	C32	Gomez-Roman, German, et al., "The Frialit-2 Implant System: Five-Year Clinical Experience In Single-Tooth And Immediately Postextraction Applications," The International Journal of Oral & Maxillofacial Implants, Vol. 12, No. 3, pp. 299-309 (1997)	
	C33	Gotfredsen, K., et al., "Histomorphometric And Removal Torque Analysis for TiO <sub>2</sub> -Blasted Titanium Implants" Clinical Oral Impl. Res., February 6, 1992, pp. 77-84.	
	C34	edited by G. Heimke, U.Soltesz and A.J.C. Lee, "The Influence of Various Titanium Surfaces on the Interface Shear Strength Between Implants and Bone," <u>Clinical Implant Materials</u> , Advances in Biomaterials, Vol. 9, 1990 pgs. 309-314.	
	C35	Patrick J. Henry, B.D.Sc., M.S.D., F.R.A.C.D.S., "Comparative Surface Analysis of Two Osseointegrated Implant Systems" (Ref. D19)	
	C36	"Influence of Surface Characteristics on Bone Integration of Titanium Implants," <i>Journal of Biomedical Materials Research</i> , Vol. 25, pp. 889-902, John Wiley & Sons, Inc., 1991.	
	C37	"Ion-Beam-Sputter Modification of th, e Surface Morphology of Biological Implants," <i>J. Vac. Soc. Technol.</i> , Vol. 14, No. 1, Jan/Feb. 1977, pp. 326-331.	
	C38	Journal of Materials Science Materials In Medicine (1997), pp. 721-729 "Bone response to surface modified titanium implants - studies on the tissue response after 1 year to machined and electropolished implants with different oxide thicknesses"	
	C39	Karagianes, M. T., D.V.M., "Porous Metals As A Hard Tissue Substitute," Biomat. Med. Dev., Art. Org., Volume 1, No. 1, pp. 171-181 (1973)	
	C40	Kasemo, B., et al., "Metal Selection And Surface Characteristics," Tissue-Integrated Prostheses Osseointegration In Clinical Dentistry (Quintessence Books), pp. 99-116 (1985)	
	C41	Kiesweiter et al., "Surface Roughness Modulates the Local Production of Growth Factors and Cytokines by Osteoblast-Like MG-63 Cells," <i>Journal of Biomedical Materials Research</i> , Vol. 32, (1996), pgs. 55-63.	
	C42	Klokkevold, P., et al., "Evaluation Of A New Chemically Enhanced Implant Surface By Torque Removal Tests In The Rabbit Femur," Clinical Oral Implants Research (1997)	
	C43	Lazzara, R., et al., "Retrospective Multicenter Analysis Of 31 Endosseous Dental Implants Placed Over A Five Year Period," Clinical Oral Implants Research, Volume 7, pp. 73-83 (1996)	
	C44	Philippe D. Ledermann, Dr. med. dent., "Die Quintessenz" (Ref. 26)	
	C45	Ledermann et al., The Ha-TI Implant, Schweiz Monatsschr Zahnmed, Vol. 101:5/1991 (7 pages)	
	C46	Philippe D. Ledermann, Dr. med. dent. "Heute so zuverlässig wie vor 50 Jahren" German (Ref. D4)	
	C47	Philippe D. Ledermann, Dr. med. dent., "Swiss Dent" (Ref. D25)	

EVAN.	IINER:	DATE CONSIDERED:
	C47	Philippe D. Ledermann, Dr. med. dent., "Swiss Dent" (Ref. D25)
	C46	Philippe D. Ledermann, Dr. med. dent. "Heute so zuverlässig wie vor 50 Jahren" German (Ref. D4)

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	C55	Persson LG, Berglundh T, Sennerby L, Lindhe J., "Re-Osseointegration After Treatment of Peri-Implantitis at Different Implant Surfaces. An Experimental Study in the Dog," <i>Clin Oral Impl. Res.</i> , 12 (2001), pgs. 595-603.	
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	C59	Product Literature for Frialit®-2, Abridged Directions For Use, Interpore International and Friatec, 20 pages (believed to be 1996 or 1997)	
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	C63	Removal Torques for Polished and Rough Titanium Implants (Ref. D49)	
	C67	W. Eugene Roberts, D.C.S., Ph.D., et al., "Osseous adaptation to continuous loading of rigid endosseous implants" (Ref. D7)	
	C68	"Short-term Plasma-cleaning Treatments Enhance In Vitro Osteoblast Attachment to Titanium," Journal of Oral Implantology, Vol. XVIII, No. 2 (1992), pp. 130-137.	
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	C69	Schulte, J., "External Hex Manufacturing Tolerances Of Six Implant Systems: A Pilot Study," Implant Dentistry, pp. 51-53 (Spring 1994)
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	C82	Sullivan, Daniel, et al., "Preliminary Results Of A Multicenter Study Evaluating Chemically- Enhanced Pure Titanium Implants," Journal of Prosthetic Dentistry (1997)
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	C88	"The Influence of Various Titanium Surfaces On the Interface Strength between Implants and Bone," <i>Advances in Biomaterials</i> , Vol. 9, pp. 309-314, Elsevier Science Publishers BV, Amsterdam, 1990.
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